

## NOTES ON THE DINGO, THE INDIAN WILD DOG, AND A PAPUAN DOG.

BY HEBER A. LONGMAN, F.L.S., C.M.Z.S. (DIRECTOR).

THROUGH the kindly suggestion of His Excellency Sir John Goodwin, a specimen of the Indian wild red dog (skin and skull), obtained from the Nilgiri Hills, was recently forwarded for the Queensland Museum collections by the Hon. Secretary of the Bombay Natural History Society. It is of interest to record that, when the skin was placed with other flat skins of the Dingo, several local naturalists who are very familiar with the Australian dog unhesitatingly assumed that it was a local specimen. In view of the resemblance of this particular skin to our material, other comparisons were made, although it was realised that the cranial and dental characters associated with the genus *Cuon* have been usually interpreted as denying close relationship with other dogs.

When briefly reviewing this question, A. A. Dunbar Brander, in his interesting account of the Indian Wild Dogs, says that "there is probably no animal, even the wolf included, which more nearly resembles the tame dog in his characters and habits, and it is no exaggeration to say, that in the event of the tame dog making to the jungle we could expect its conduct to be in most respects similar to that of the wild animal."<sup>1</sup>

This is not the place to review in detail the several names that have been given to the wide-ranging Indian wild dogs, usually placed in the genus *Cyon*, or more correctly, *Cuon*. Two species were recognised by Mivart in his "Notes on the Genus *Cyon*," in 1890,<sup>2</sup> and also by W. L. Selater in his Catalogue in 1891.<sup>3</sup> The North-Asiatic species, *C. alpinus* of Pallas (1831), does not concern us. The second species, variously recorded as *primavus*, *sumatrensis*, *dukhunensis*, *rutilans*, and *javanicus*, if considered in the wide sense, should be known as *Cuon javanicus* Desmarest (1820),<sup>4</sup> as that name has precedence.\*

Although Hodgson originally described his *primavus* in 1833<sup>5</sup> as *Canis*, he subsequently established the genus *Cuon* for these Indian dogs because of the deficiency in the mandible of the third molar.<sup>6</sup> Lydekker,<sup>7</sup> however, still included these dogs in *Canis* in 1900.

<sup>1</sup> 1923. A. A. Dunbar Brander, "Wild Animals in Central India."

<sup>2</sup> 1890. St. George Mivart, P.Z.S., p. 88.

<sup>3</sup> 1891. W. L. Selater, Catal. Mamm. Ind. Mus., pt. 2, p. 260.

<sup>4</sup> 1820. Desmarest, Mammalogie, p. 193.

<sup>5</sup> 1833. Hodgson, P.Z.S., p. 111.

<sup>6</sup> 1838. Hodgson, Ann. Mag. Nat. Hist., vol. 1, p. 152.

<sup>7</sup> 1900. Lydekker, "Great and Small Game of India," &c., p. 344.

\* The Honorary Secretary of the Bombay Natural History Society refers to the specimen sent as *Cuon dukhunensis*, and kindly gives the following references to articles in their Journal:—"Notes on Wild Dogs," vii, No. 4; "The Indian Wild Dog," x, No. 3; "A Wild Dog's Earth," xiii, No. 3; "Wild Dog Hunting," xvi, No. 4; "Wild Dog in Burma," xxviii, No. 1; "In the Haunts of the Indian Wild Dog," xxix, No. 2.

E. D. Cope considered that Hodgson's genus *Cuon* was identical with *Speothus*,<sup>8</sup> a genus established by Lund in 1839 for an extinct species found in caves in Brazil, which Huxley placed as congeneric with *Icticyon*. Huxley considered *Cuon* as a sub-genus of *Canis*.<sup>9</sup>

In his paper on "Some South American Canidæ," Einar Lönnberg points out that  $m_3$  is missing on both sides in an example of *Pseudalopex lycoides* and refers to the variability of this unit, "which is always small and more or less useless as it sits so far back that it has no antagonist to work against."<sup>10</sup> This tooth is also missing on both sides in a mandible of a grey wolf in our collection, but it, or the alveolus, is invariably present in our series of fourteen mandibles of Dingoes. There is no evidence of wear in this tooth, however, in our specimens of Dingoes or domestic dogs, and Lönnberg's remarks appear to be significant. There are records of its rare occurrence in specimens of *Cuon* itself (Huxley, *loc. cit.*, p. 274), and possibly studies of juvenile mandibles would demonstrate that the germ of this minor member of the molar series is not completely lost in *Cuon*. Thus it seems somewhat arbitrary to eliminate remote progenitors of the Indian wild dog from the lineal ancestry of the Dingo on the sole basis of this variable distinction. The several fossil species of *Cuon* described, however, show that this deficiency in the molar series is not confined to modern species. The variability of the dental series in the Canidæ is also illustrated by the studies by Windle and Humphreys of accessory molars,<sup>11</sup> and Mivart (*loc. cit.*) records a skull of *Cuon* in which there was no trace of the second upper molar.

Most of the literature regarding the Dingo and its antiquity in Australia has been traversed by the late R. Etheridge, jr.,<sup>12</sup> and by Professor F. Wood Jones.<sup>13 14</sup>

In his papers the latter writer gives an excellent account of the Dingo, and reviews the theories advanced by previous writers. He considers it to be not of specific rank, but a sub-species of *Canis familiaris*. As long ago as 1880, Huxley (*loc. cit.*) pointed out that "there is nothing peculiar about the Australian Dog."

Following the researches of G. S. Miller, G. M. Allen, and others, it seems fairly certain that all domestic dogs have descended from a wolf-like ancestor. Wood Jones points out that the Dingo may be separated from other breeds of domestic dogs by its relatively larger teeth, being more wolf-like in this respect.

<sup>8</sup> 1879. E. D. Cope, Proc. Acad. Nat. Sci. Phil., p. 185.

<sup>9</sup> 1880. T. H. Huxley, P.Z.S., p. 278.

<sup>10</sup> 1919. Einar Lönnberg, Arkiv for Zoologi, bd. 12, No. 13.

<sup>11</sup> 1890. Windle & Humphreys, P.Z.S., p. 29.

<sup>12</sup> 1916. R. Etheridge, jr., Mem. Geol. Surv. N.S.W., Eth. Ser., No. 2.

<sup>13</sup> 1921. F. Wood Jones, Tr. Roy. Soc. South Aus., xlv, pp. 254-263.

<sup>14</sup> 1925. F. Wood Jones, The Mammals of South Aus., pt. iii.

Utilising his data and supplementing his figures with our own measurements, it may be stated that in the Dingo the antero-posterior length of the carnassial is more than 10 per cent. of the basal length of the skull. In domestic breeds the length of the specialised tooth is usually distinctly less than 10 per cent. of the basal length of the skull, and this ratio is very rarely exceeded. Owing to the contracted contours of the bull-dog's head, however, exceptions will be found in Windle and Humphreys' table of measurements for this and some other breeds.<sup>15</sup>

In our specimen of the Indian dog the basi-condylar length of the skull is 181, and the length of the carnassial is 21.5. The carnassial is thus relatively longer in the Indian Dog than in the Dingo, and it is distinctly greater than the combined lengths of the following two molars. In the Dingo the length of the carnassial is about equal to that of the two molars. The first upper molar of the Dingo is relatively broader than that of the Indian Dog. In the absence of a well-marked cingulum on the upper molars *Cuon* agrees with the true dogs and wolves and is unlike the Jackal and Fox. As noted by Mivart (1890, p. 88), the cranium in *Cuon* is but little elevated in the interorbital region, when seen in profile, being very distinct from the Dingo, which, owing to the development of large frontal sinuses, has a pronounced downward curve to the nasals. There is little evidence in the Indian Dog of the outward bend of the lower dental series at the junction of the premolars and molars, which is characteristic of the Dingo and most dogs and wolves, but which is not found in the Coyote and Jackal.

As was pointed out by Forsyth Major (P.Z.S., 1900, p. 833), the talon of the lower carnassial in *Cuon* is unicuspid, whereas in *Canis* "it is composed in the main of a strong outer and a lesser inner tubercle." This distinction has been useful in the study of fossil species.

The skull of a Dingo used by Mivart (*loc. cit.*) for comparison with *C. javanicus* was longer than that of the Indian species, but his comparative measurements show that *Cuon* is relatively broader.

It will be thus seen that the cranial distinctions between *Cuon javanicus* and the Dingo are considerable, apart from the characteristic deficiency in the lower molar series.

In both the Dingo and Indian Dog the characteristic colouring of the body is a uniform reddish brown, and the presence of an occasional white tip to the tail is common to each. Both dogs have erect ears and a bushy tail, and neither can bark. Adult specimens of each are practically untameable, although the Dingo is now more feral than in the early days of the aborigines, whose "gins" occasionally suckled the pups.

---

<sup>15</sup> 1890. Windle and Humphreys, P.Z.S., p. 18.

Sir John Goodwin informs me that the Indian wild dogs are characteristically silent when hunting, but when surprised by man in the jungle they will yap repeatedly as they retire. When in retreat they disdain to take cover.

As is well known, the Dingoes are silent hunters. Their dismal howl, which is a common note in the wilder parts of the Australian bush, is characteristically nocturnal, and is evidently a social habit. Occasionally they are heard yelping in secluded places in the daytime. Usually the Dingo does not yelp when surprised by man, but Mr. H. G. Barnard tells me that when a bitch has pups she will move some distance away and yelp at a disturber. There are usually five pups in the litter. An excellent photograph of a Dingo pup by C. Barrett appears in the Australian Museum Magazine, vol. iii, No. 6, 1928.

The Dingo is notorious as a destroyer of sheep, and frequently kills calves and poultry. Probably he is of some value at times in keeping down rabbits, but he is the "Ishmael" of the bush and every man's hand is against him.\*

Wood Jones records that the general colour may vary from black to almost white. Black and tan examples are occasionally noted, and it is evident that these variations in colour have existed from early days.

In this connection I must find space for an interesting note regarding a black Dingo pup, from the diary of Major Lockyer on his visit to Stradbroke Island in 1828, which is reprinted by George Watkins in his "Notes on the Aborigines of Stradbroke and Moreton Islands":—"The attachment of these people to their dogs is worthy of notice. I was very anxious to get one of the wild native breed of black colour, a very handsome puppy, which one of the men had in his arms. I offered him a small axe for it; his companions urged him to take it, and he was about to do so, when he looked at the dog and the animal licked his face, which settled the business. He shook his head and determined to keep him."<sup>16</sup>

Possibly new data on the ancestry of the Dingo may be gained from studies of serological isoagglutination, the method having been used for phylogenetic studies of sheep by Kaczowski, noted in a paper read before the Royal Society of Edinburgh.<sup>17</sup>

PAPUAN DOGS.—There are two skins and two skeletons of Papuan dogs in the Queensland Museum. The first (No. 3751) was described by C. W. De Vis in 1910.<sup>18</sup> A skin (No. 3223) was received from His Excellency Sir Hubert Murray in 1918, and subsequently a skeleton (No. 4083), belonging to another dog, was received from the same source. These specimens all came

<sup>16</sup> 1891. George Watkins, Proc. Roy. Soc. Qld., viii, pt. 2, p. 42.

<sup>17</sup> 1927. B. Kaczowski, reported in "Nature," 3rd December, p. 825.

<sup>18</sup> 1910. C. W. De Vis, Ann. Qld. Mus. No. 10, p. 19.

\* Payments of 15s. bonus per scalp are now made through Dingo Boards in Queensland, and it is estimated that the yearly average of payments is over 50,000. In 1926, 52,249 scalps were paid for, but this includes a few foxes.

from the Mount Scratchley district in the northern division of Papua, or British New Guinea. As they were originally obtained from the natives, some doubt was expressed by Papuan officials as to whether they were really feral. The general colour of the first skin was "black and white, the black dominant; the white portions are a long irregular patch on the nape, another covering the chin, throat, and breast, and contracting to a point on the abdomen; the paws, left tarsus, and tip of tail are white also; the inguinal region tawny white."

The general colour of the second skin corresponds with Ridgway's "russet," interspersed with darker hairs, especially on the tail, the limbs being lighter.

The basi-condylar length of the cranium of 3751 is 146 mm., and the antero-posterior length of the upper carnassial is 16. For No. 4083 the corresponding dimensions are 149 and 15.5. The upper carnassial is about equal to the combined lengths of the two molars, and this proportion is usually found in the Dingo and some other dogs. The breadth of the palate between the canines is relatively greater in the Papuan specimens than in the Dingo.

These Papuan specimens are a small breed of true dogs, possibly not truly feral or autochthonous, with no obvious distinctive features, and apparently not very closely related to the Dingo. But it is of interest to note that this race agrees with the Dingo, the Indian wild dog, and the wolf in the relatively large proportion of the upper carnassial, which is more than 10 per cent. of the basi-condylar length of the skull. This proportion appears to be a useful distinction in the ratios found in adult crania of dogs.

In very old and exceptionally large Dingoes, owing to the growth of the skull, the length of the carnassial may be somewhat less than 10 per cent., but with ordinary adult skulls there is probably an indication of a domestic strain if the carnassial length does not attain this ratio. Unfortunately, I have no measurements of the well-known "heelers," the valuable cattle-dogs, which were originally the result of a cross between the Dingo and the merle. Some authorities consider that there is a strain of the Dingo in the kelpie, the well-known Australian sheep-dog, and this matter has been concisely reviewed by R. L. Kaleski.<sup>19</sup>

*Measurements.*

	Basi-condylar Length.	Upper Carnassial Length.
Indian Dog, J. 4709 .. .. .	181	21.5
Papuan Dog, J. 3751 .. .. .	146	16
Papuan Dog, J. 4083 .. .. .	149	15.5
Gray Wolf (Qld. Mus.) .. .. .	236	25
<i>C. lupus lupus</i> (Miller) .. .. .	255	27
Dingo (average of ten, Qld. Mus.) ..	181	20
Domestic Dog (Miller) <sup>20</sup> .. .. .	230	21.6
Great Dane (Winge) .. .. .	255	22
St. Bernard (Wood Jones) .. .. .	248	20
Irish Setter (Qld. Mus.) .. .. .	203	20
Prize Collie (Qld. Mus.) .. .. .	210	20

<sup>19</sup> 1926. Encyclopædia of Australia, Angus and Robertson, ii, p. 452.

<sup>20</sup> 1912. G. S. Miller, Cat. Mam. West. Eur. Brit. Mus., p. 313.

It will be noted that the Indian and Papuan dogs agree with the Dingo and the wolf in the relatively lengthy carnassial. In the measurements of nine crania of "*Cyon*," recorded by Huxley (*loc. cit.*, 1890, p. 275) the carnassials are well over 10 per cent. of the total length.

In his article on "The Native Dog of Western Polynesia," B. G. Mahony states that among the small true native dogs the two predominating colours are "reddish-tawny or glossy-black."<sup>21</sup>

In his useful study of "Dogs of the American Aborigines," which contains a valuable bibliography, Glover M. Allen<sup>22</sup> considers that "the wild progenitor of the dog was a small wolf of a species distinct from the large wolves of circumboreal distribution. It is natural to look to Asia for this unknown ancestry. . . ." In a paper which the writer has not been able to study, Jentink suggests the wild dog of Java as a representative of the original stock whence the domestic dog sprang.<sup>23</sup>

Wood Jones notes that the wild dogs of South-eastern Asia would be the most probable migrant in a "walk overland" colonisation of Australia, but eliminates them from the ancestry of domestic and feral true dogs because of the distinct dentition. The same author makes out a very strong case for his view that the Dingo did not come by a land bridge, but was brought by early aboriginal man in his pioneer voyagings.

R. Etheridge has summarised (*loc. cit.*) the evidence for fossil remains of the Dingo and its occurrence in caves and alluvial deposits. It is interesting to note, however, that among the thousands of dental fragments of marsupials in this Museum from alluvial deposits on the Darling Downs no fossil teeth of the dog have yet been traced.

As long ago as 1837 W. Ogilby stated his belief that the importation of the dingo was "in all probability contemporary with the primitive settlement of the natives."<sup>24</sup>

Although Charles Darwin made no special study of the Dingo, it is of interest to recall his words:—"In Australia the Dingo is both domesticated and wild; though this animal may have been introduced aboriginally by man, yet it must be considered as almost an endemic form, for its remains have been found in a similar state of preservation and associated with extinct mammals, so that its introduction must have been ancient."<sup>25</sup>

In his work on "Australasia," vol. i, p. 65, A. R. Wallace refers to the Dingo "as probably not truly indigenous." He adds: "It is, in fact, difficult

<sup>21</sup> 1915. B. G. Mahony, Journ. Poly. Soc., xxiv, p. 69.

<sup>22</sup> 1920. G. M. Allen, Bull. Mus. Comp. Zool. Harv., lxiii, No. 9.

<sup>23</sup> 1897. F. A. Jentink, Notes Leyden Mus. 18.

<sup>24</sup> 1837. W. Ogilby, Trans. Linnean Soc., vol. 18, p. 121.

<sup>25</sup> 1890. C. Darwin, Animals and Plants under Domestication, vol. i, p. 26.

to understand how such an animal could, without assistance, have arrived in the country except by means which would have equally admitted the entrance of many other animals. It differs little from the wild or half-wild dogs of India and other countries, and this is an indication that it is, geologically speaking, a recent immigrant; and there is no improbability in the supposition that the entrance of man into the country dates as far back as the cave deposits in which its bones have been found.”

The voluminous literature of New Zealand dogs is summarised by G. M. Thompson, who says, “Most of the histories of the migrations of the Maori refer to the fact of their bringing dogs with them. . . .”<sup>26</sup>

From the evidence of such relics as the Talgai and Cohuna skulls, it is obvious that man has a lengthy history in Australia. It is very improbable that the ancestors of the Dingo succeeded in reaching Australia before man.

The story of primitive man's first advance through the islands of the Pacific, if fully known, would be one of the most fascinating chapters in the history of humanity. Doubtless the earlier pioneers found adventure in crossing a narrow strait in frail canoes or clumsy rafts, and gradually these “men of the dawn” found their way farther south and east. This pioneering was almost certainly associated with the dog, at first only tameable as a puppy, the old *Canis ferus* gradually evolving into *Canis familiaris*, though lapsing occasionally into primitive wild ways. Ultimately man and his dogs reached Papua, Australia, and New Zealand.

In a previous paper<sup>27</sup> the writer has touched the origin of our marsupials, which also, in a far earlier period, traversed the northern land masses which later became an archipelago. But, compared with these, man and his dogs are but recent migrants.

Man and the Dingo in Australia have undergone a somewhat parallel course of evolution. Primitive man was isolated in Australia for a sufficiently long time to develop into a distinct race—a race almost as distinctive as that of the Negro, the Mongol, or the Caucasian. The Neanderthaloid characters frequently seen in the crania of Australian aborigines suggest that the first migrants were an offshoot of the widely spread Neanderthal species. The Dingo, co-voyager with man, has also been sufficiently long in the land to develop into a distinctive race, but the relatively large size of its teeth and its feral habits present evidence of its descent from wolf-like ancestors in Asia.

<sup>26</sup> 1922. G. M. Thomson, “The Naturalisation of Animals and Plants in New Zealand,” p. 64.

<sup>27</sup> 1924. H. A. Longman, *The Zoogeography of Marsupials*, Mem. Qld. Mus., viii, pp. 1-15.